

CellScape™

PRECISE SPATIAL MULTIPLEXING

More Detail. More Data. Less Time.

The Next Generation of ChipCytometry™ Instrumentation



At the Forefront of Spatial Biology

CellScape is an end-to-end solution for highly multiplexed spatial-omics. Combining an advanced, purpose-built imaging system with easy-to-use fluidics for walk-away automation, the CellScape system accelerates exploration in the rapidly evolving field of spatial biology.



From Images to Discovery



HIGH MULTIPLEXING

Detect virtually unlimited protein biomarkers on a single sample.



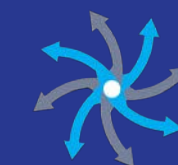
THROUGHPUT & AUTOMATION

Expedite discovery with 4 sample capacity and walk-away automation.



QUANTITATIVE IMAGING

Combine high resolution and innovative high-dynamic range imaging for true single-cell quantification.



VERSATILITY

Simple easy-to-use workflow and open-source reagents make spatial biology accessible.

The ChipCytometry Workflow

STAIN

Immuno-stain sample with up to 5 fluorescently labeled antibodies in a single cycle

IMAGE

Quality optics and HDR imaging achieves true single-cell resolution

ERASE

Photobleach sample to eliminate fluorescence signal to start the cycle again

Sample Prep

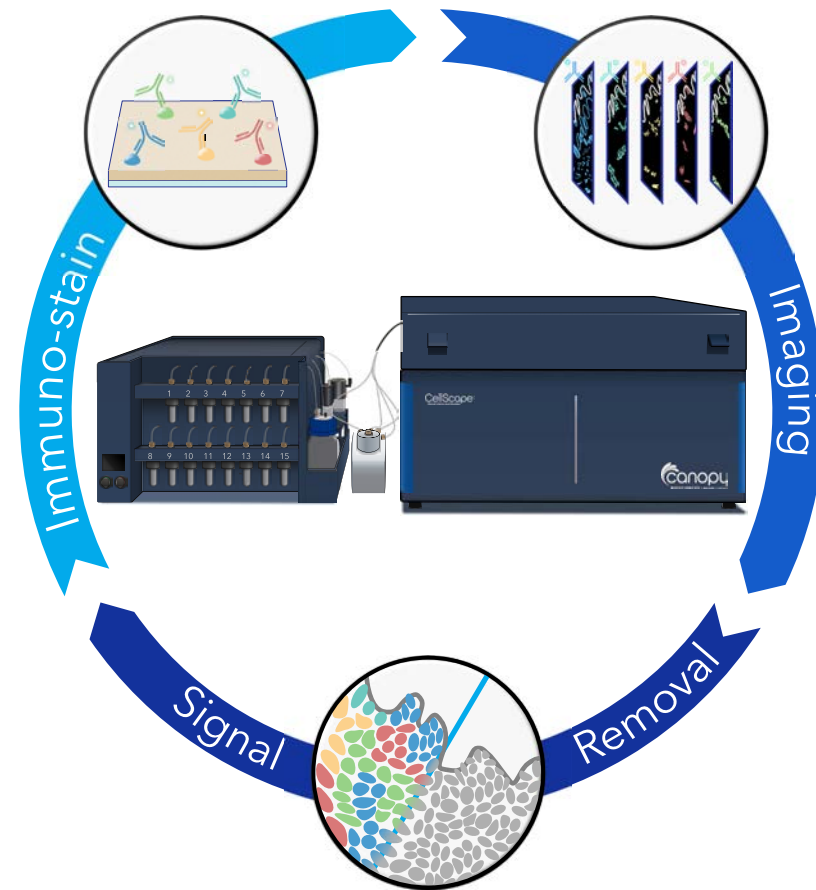
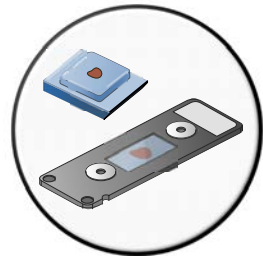
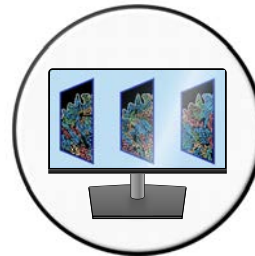


Image Overlay



Flexibility for Today...And Tomorrow

Biobanking on proprietary chip technology preserves precious samples with the option to interrogate and re-interrogate the same sample for up to 2 years.

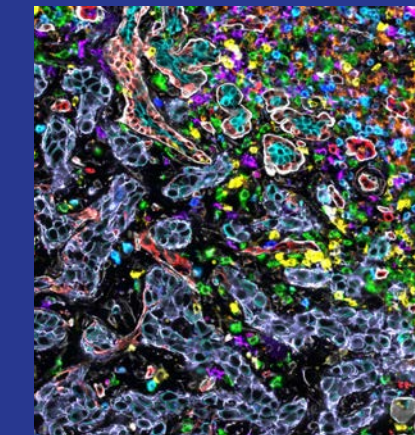
GET MORE OUT OF YOUR PRECIOUS SAMPLES

Once samples are loaded on CellScope Chips, they are stable for over two years. ChipCytometry analysis is non-destructive and the same sample can be interrogated repeatedly.

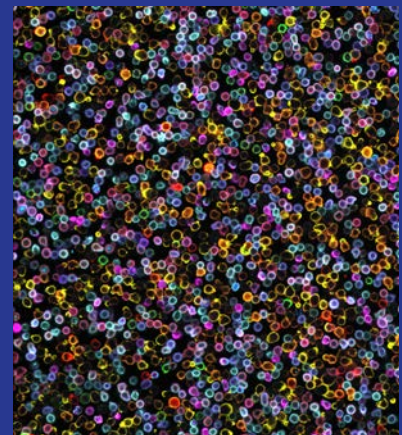


ONE INSTRUMENT FOR MANY SAMPLE TYPES

CellScope Chip technology enables the analysis of many different types of samples including tissue sections (FF or FFPE) and cell suspensions, all on a single instrument.



Human Breast Cancer Tissue



Human PBMCs

More Data. Less Time.

CellScape offers a field of view twice as large as the prior generation instrument so you can capture twice the amount of data in the same time, all with even better resolution.

And with the optional FalconFAST™ mode, you can capture a field of view 8x larger than our last generation instrument and with improved resolution.

Cut your experiment times in half. Or by eight.

Image up to 8 samples in 24 hours.*

* For a standard 20-plex ChipCytometry assay with FalconFAST mode. Imaging time is influenced by a number of factors including plex and total scan area.



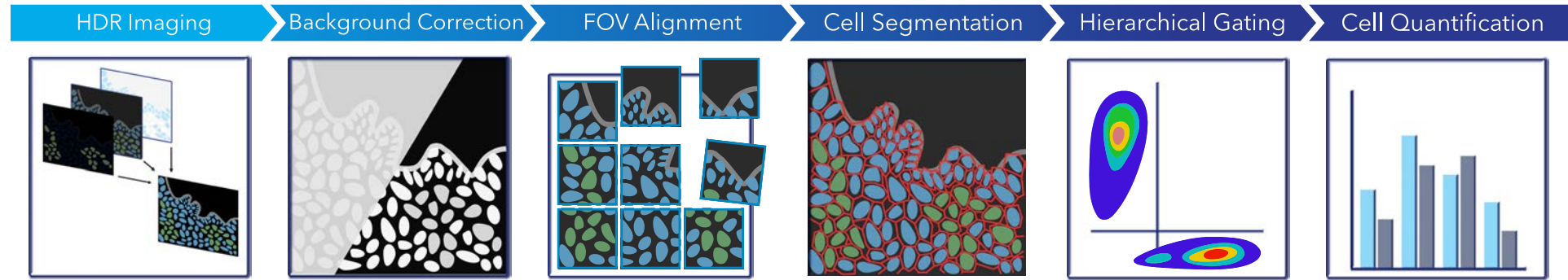
First-Generation Instrument

CellScape

CellScape with FalconFAST Mode

Designed for Quantification

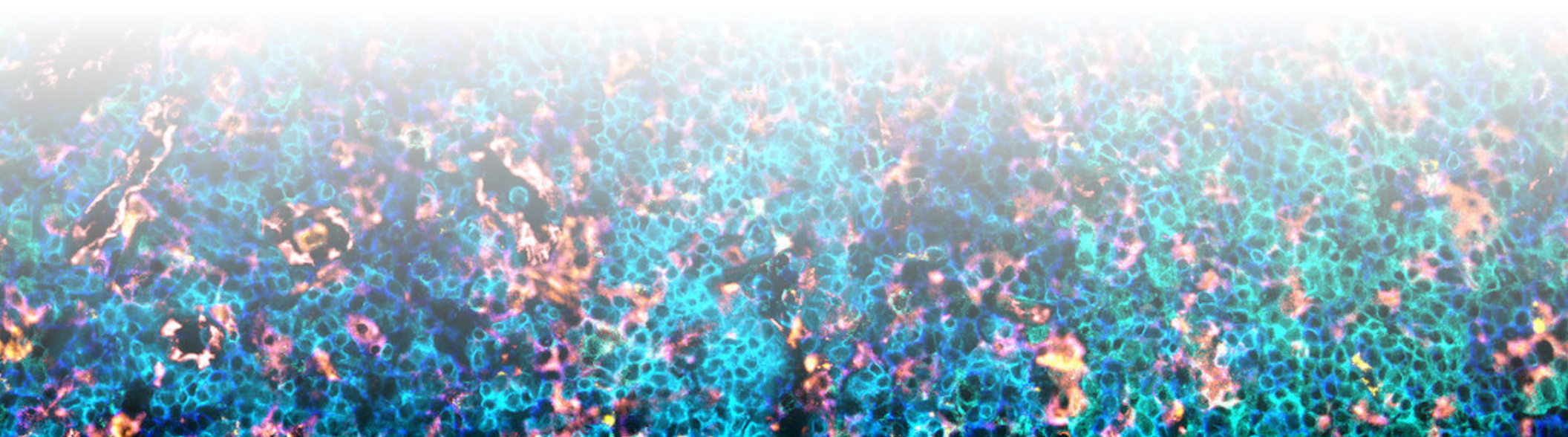
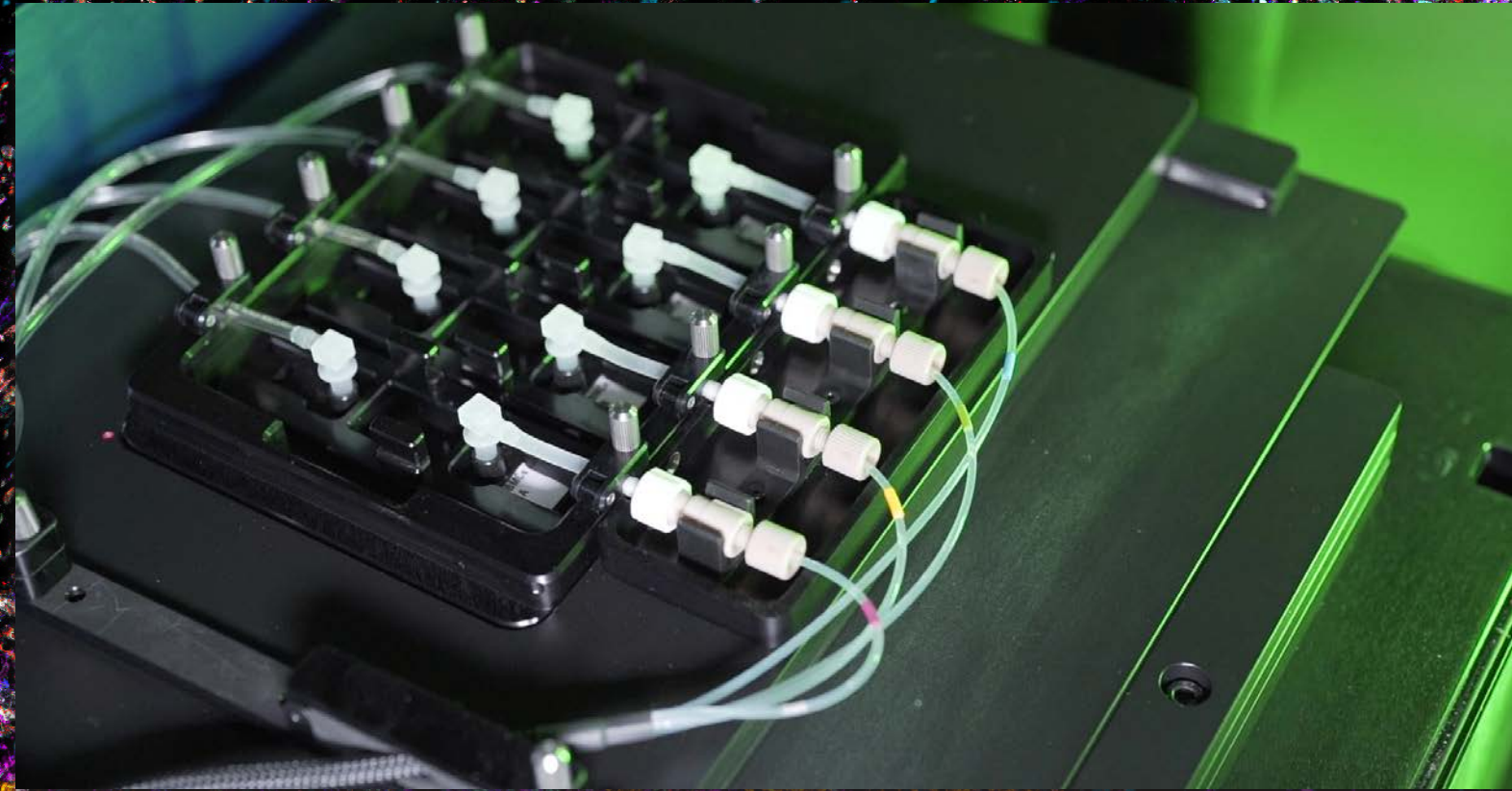
Analyze tissue or cell suspension data with built-in software for image processing and quantification. Use the CellScape App to convert HDR image data to quantitative data using flow-like hierarchical gating.



The CellScape App supports automated processing of HDR images including background correction, FOV alignment, and cell segmentation. In the App, the user defines hierarchical gating structure to quantify cell populations.

Ultra High Plex & Fully Automated

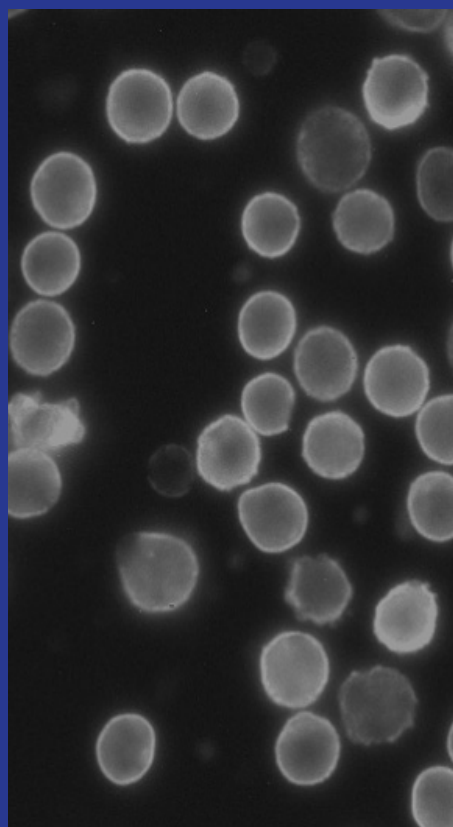
Iterative staining and imaging for construction of an assay with a virtually unlimited number of targets. CellScape hardware includes automated liquid handling and a 4-sample holder for continuous acquisition, 24 hours per day.



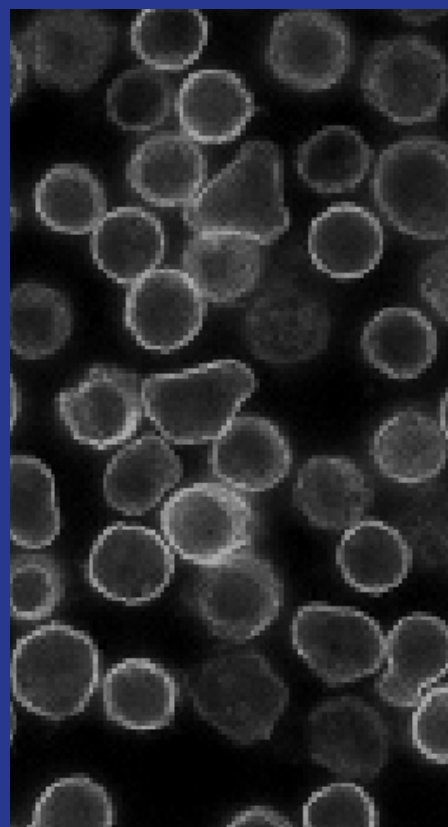
Resolve Every Detail

Other spatial biology instruments only have multicellular resolution as low as 10,000 nm/pixel. With crisp, 182 nm/pixel resolution, CellScape can reveal the subcellular information critical to your studies.

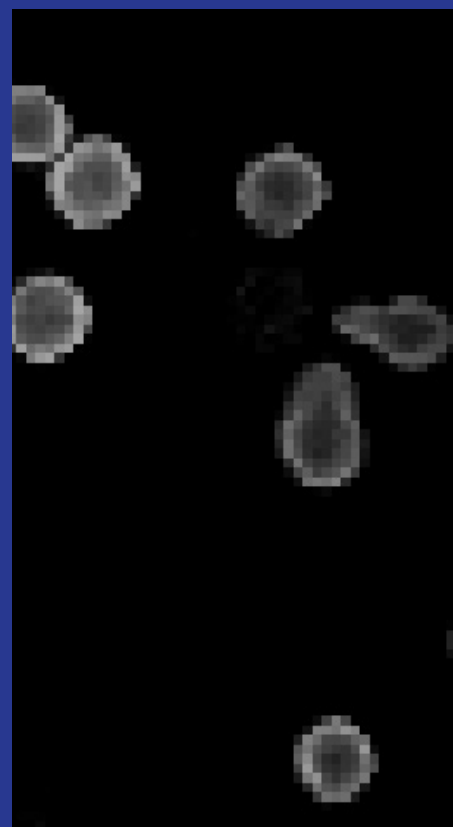
CellScape
182 nm/pixel



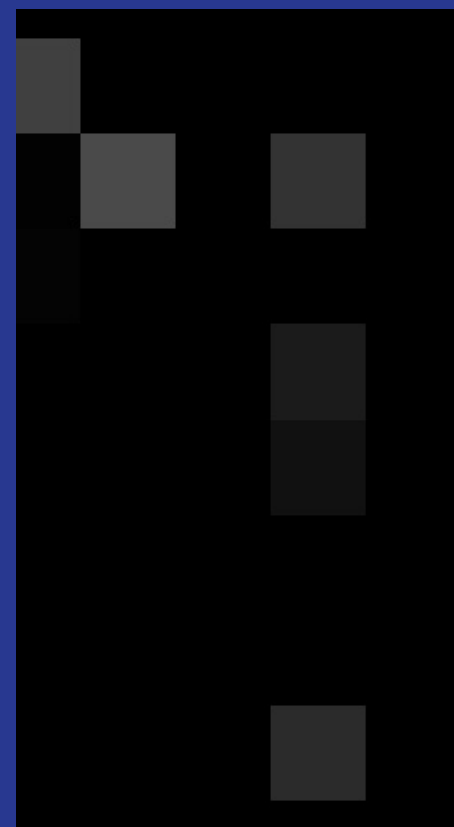
500 nm/pixel



1,000 nm/pixel

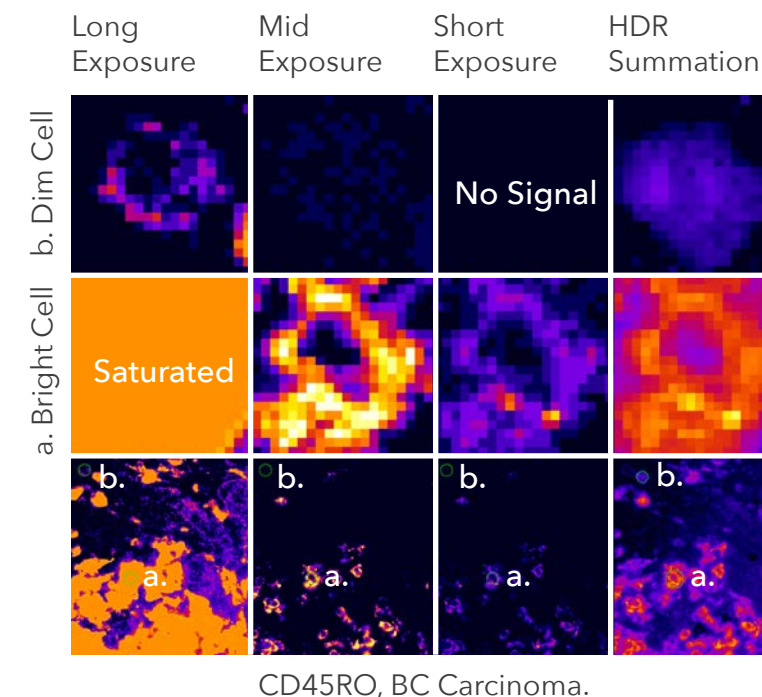


10,000 nm/pixel



Quantify Everything

See what you've been missing. Unique High Dynamic Range (HDR) image acquisition pipeline enables accurate quantification of both high-and low-expressing targets, simultaneously.



HDR Imaging: Extraordinary Signal-to-Noise Ratio Gives Superior Phenotypic Precision

CD45RO staining, one of 23 markers interrogated in breast cancer with HDR multi-exposure fusion.

Low expression can only be quantified with long exposures, yet this over-saturates bright cells. **High expression** may be quantified with shorter exposures, but at the loss of dim signal.

Only HDR multi-exposure fusion can capture the dimmest cells and the brightest cells on the same linear scale.

Accessible Platform, Open-Source Reagents

With open-source reagents and flexible panel design, researchers can design custom panels for any immunology, oncology, or neurobiology application.



Open-Source Reagents

Compatible with fluorescently labeled antibodies from any vendor



Flexible Panel Design

Select from 300+ pre-validated antibodies or use your favorite clones



Optimized Protocols

Compatible with FFPE and FF tissue sections, blood, and cell suspensions

[Explore Our Assay Marker Catalog](#)



Explore Applications

Resolve Distinct Subpopulations

Most cameras are insufficient to capture the full range of protein expression within a single tissue specimen. CellScape uses HDR imaging and first-rate optical components to provide the greatest sensitivity for the highest quality data.

Discover Rare Cell Types

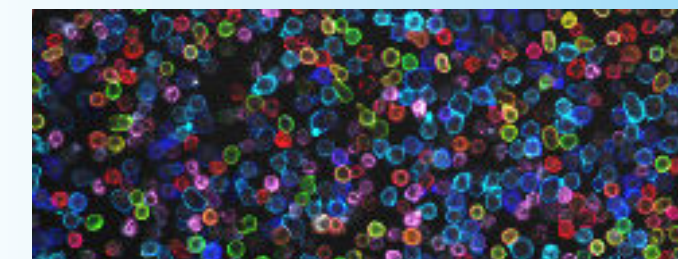
Cells of biomedical interest are often present in very low quantities. Researchers at the University of Oxford used ChipCytometry to demonstrate its utility to study rare cell populations in colon epithelial tissue (Leng et al., 2019).

Develop Custom Assays

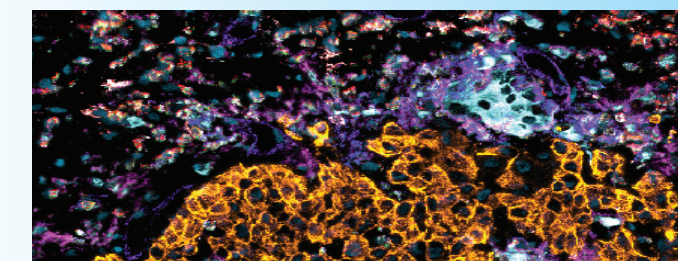
ChipCytometry uses open-source reagents and protocols to support researchers developing new methods. Researchers at the Technical University of Munich described the use of ChipCytometry to combine RNA in situ hybridization and antibody staining on the same tissue specimen (Jarosch et al., 2022).



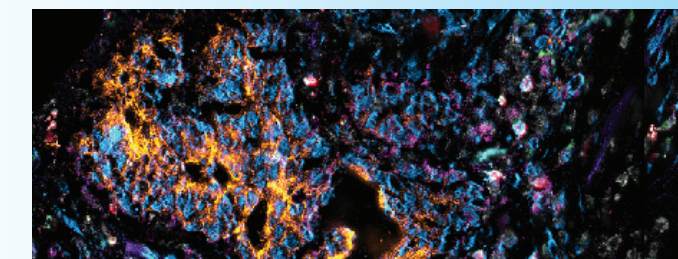
[Visit our Resource Center to learn more!](#)



Human PBMCs stained with 11-plex ChipCytometry assay.



Lung cancer tissue stained with 12-plex ChipCytometry assay.



Colon cancer tissue stained with 21-plex ChipCytometry assay.

CellScape Specifications

INSTRUMENT SPECIFICATIONS

Dimensions	CellScape Instrument: 57 cm x 38 cm x 32 cm PlexFlo Fluidics Unit: 37 cm x 30 cm x 20 cm
Weight	60 kg
Additional Components	Light source, eBox, computer and monitor, barcode scanner
Automation	Walk-away image acquisition
Light Source	120 W Mercury Arc Lamp
Imaging Modes	Transmitted and fluorescence light
Sample Compatibility	FFPE tissues, FF tissues, Cell suspensions
Fluorescence Channels	Spectrally distinct filter sets for 5 color imaging
File Formats	OME-TIFF, TIFF, PNG, and FCS files
Image Analysis Software	Image processing, cell segmentation, and hierarchical gating managed through the CellScape App

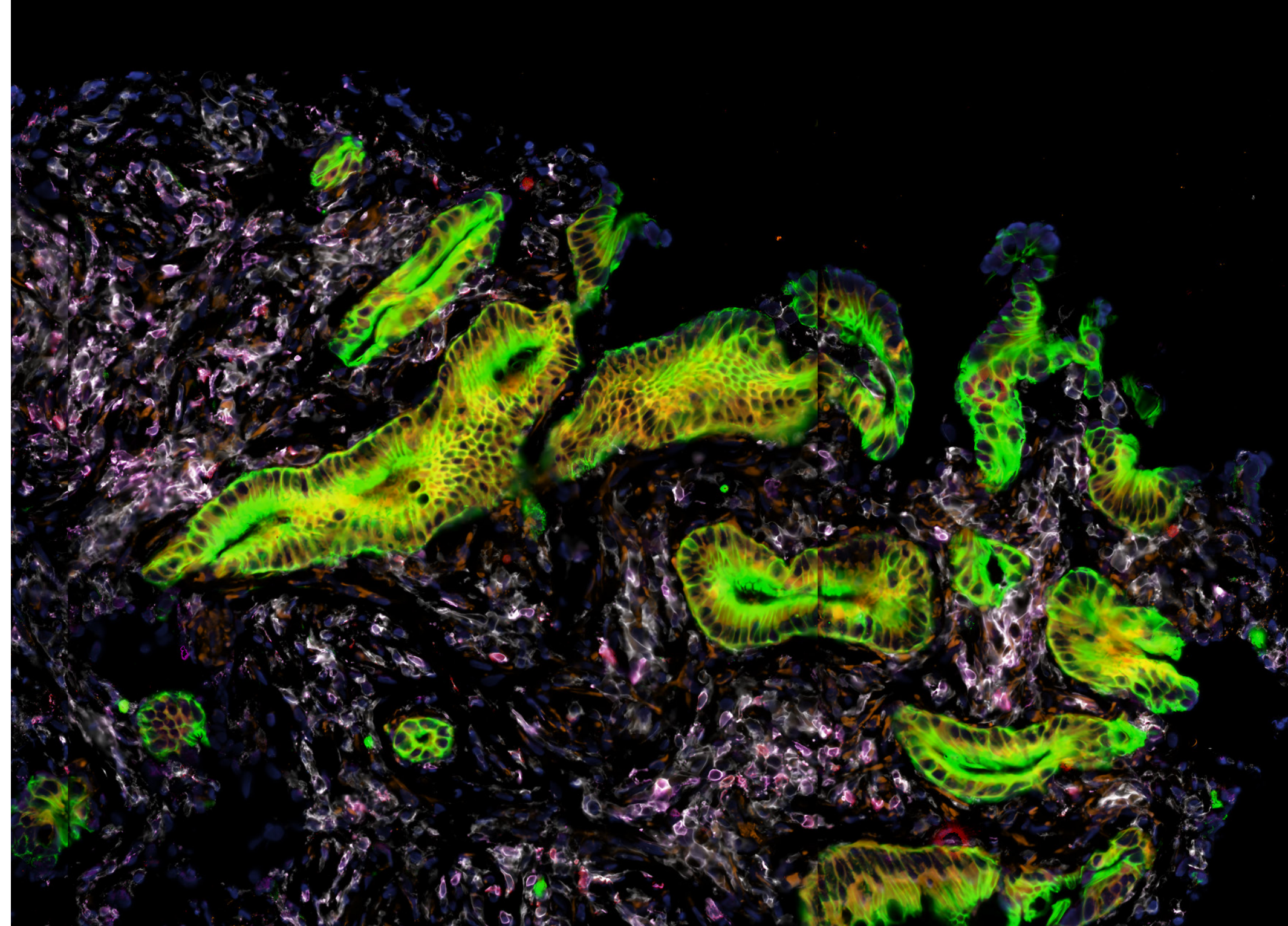
CellScape Instrument

FalconFAST Mode

	CellScape Instrument	FalconFAST Mode
Objective	Plan Apo 20X 0.80 NA	Plan Fluor 10X 0.30 NA
FOV Size	0.8 mm ²	3.3 mm ²
Resolution*	278 nm	742 nm
Digital Sampling**	182 nm/pixel	365 nm/pixel

* Resolution is calculated with the following equation: $r = 0.61\lambda/NA$ using the shortest excitation wavelength ($\lambda = 365$ nm). The resolution in other channels will be higher.

** Digital sampling is independent of resolution and is calculated by dividing the pixel size of the camera by magnification.



To learn more, visit CanopyBiosciences.com/cellscape
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